

# A WITHIN SUBJECT STUDY COMPARING BREAST BOARD IMMOBILISATION WITH VACUUM BAG FOR RADIOTHERAPY IN BREAST CANCER: SETUP PRECISION, PATIENT COMFORT AND TREATMENT TIME

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**Background:** Radiotherapy plays a vital role in management of breast cancer. In precision radiotherapy, for accurate delivery of radiation to the intended region, an effective, comfortable and reproducible positioning of patient aided by an immobilisation device is pivotal. The commonly used immobilization equipment in supine position breast or chest wall radiotherapy has been breast board. In this study, we wish to introduce the use of vacuum bag immobilisation in breast cancer radiotherapy, to compare it directly to ascertain its status and use with breast board.

**Objectives:** To compare the setup uncertainties between a Breast board and Vacuum bag immobilisation for supine position radiotherapy in breast cancer. To assess patient's preference for an immobilisation device and to compare mean difference in setup time, treatment time and in-room time between the two groups.

**Methods and Materials:** Sixteen patients requiring adjuvant radiotherapy to breast or chest wall were treated with breast board and vacuum bag immobilisation in a daily alternating schedule. Setup precision was assessed using cone-beam computed tomography (CBCT) imaging. Patient's preference for an immobilisation equipment was recorded. The time needed for patient setup, the treatment time, and in-room time were recorded.

**Results:** Mean random and median systematic errors were not significantly different between the two groups in two axes (lateral and vertical). Mean random error in the longitudinal axis was significantly lesser with the use of a vacuum bag (0.36 vs 0.51 cm). The magnitude of difference in shifts was higher favouring a vacuum bag among overweight and obese patients. Eleven out of 16 patients preferred to use a vacuum bag. The mean in-room time was longer with breast board immobilisation ( $16.02 \pm 3.2$  min) than with vacuum bag immobilisation ( $14.63 \pm 2.6$  min).

**Conclusion:** Vacuum bag immobilisation can be used as a valid alternative to breast board immobilisation in supine position radiotherapy for breast cancer. Vacuum bag immobilisation may be preferred over use of breast board among overweight and obese patients.